

Appl. No. 09/972,576

REMARKS

This is in response to the Office Action of 01 June 2004. Claims 1-5 and 9-10 are pending in the application, and Claims 1-5 and 9-10 have been rejected.

By this Response and Amendment, Claims 1-5 and 9-10 have been amended, and new Claims 11-17 have been added.

No new matter has been added.

In view of the amendments above and remarks below, Applicants respectfully request reconsideration and further examination.

About The Invention

The present invention relates generally to semiconductor structures in which a protection diode is provided for a bipolar transistor; and relates more particularly to semiconductor structures in which a protection diode is provided for an RF power transistor in a double-poly process architecture.

Non-Narrowing Amendments

Various non-narrowing amendments have been made to improve the readability of the Claims. More particularly, the character "•" has been deleted from the beginning of each subparagraph of Claim 1, reference numerals have been deleted from Claims 1-5, and the preambles of dependent Claims 9 and 10 have been amended to begin with the word "The" rather than the word "A". None of these amendments is intended to narrow the scope of the Claims in any way.

Rejections under 35 USC 102(b)

Claims 1-4 and 9 have been rejected under 35 USC 102(b) as being anticipated by Pao, et al., (US Patent 4,344,081).

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Claim 1 has been amended to recite a first polysilicon structure , of the second conductivity type, in contact with the first diffusion region; a second polysilicon structure, of the first conductivity type, in contact with the shallow region; and a dielectric spacer disposed between the first and second polysilicon structures. Support for this amendment can be found in the specification at pages 6-7, and in Figs. 3g-3m.

There is no disclosure, suggestion, or motivation in Pao, et al., regarding the newly recited limitations of independent Claim 1. In view of the foregoing, Applicants respectfully submit that the rejection of independent Claim 1, and the Claims that depend therefrom under 35 USC 102(b) have been overcome.

Rejections under 35 USC 103(a)

Claims 5 and 10 have been rejected under 35 USC 103(a) as being unpatentable over Pao, et al., in view of Harmel, et al., (US Patent 5,410,177).

Claims 5 and 10 depend, directly or indirectly, from amended independent Claim 1. As discussed above, Claim 1 has been amended to recite a first polysilicon structure, of the second conductivity type, in contact with the first diffusion region; a second polysilicon structure, of the first conductivity type, in contact with the shallow region; and a dielectric spacer disposed between the first and second polysilicon structures.

Since the references do not appear to disclose, suggest, or provide motivation for the invention defined by Claims 5 and 10, which depend from amended Claim 1, Applicants respectfully submit that the rejection of these Claims under 35 USC 103(a) has been overcome.

New Claims 11-17

New Claims 11-17 are directed to a semiconductor structure that provides

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a bipolar transistor in combination with a protection diode in a double-poly process, wherein a first polysilicon layer is of a first conductivity type and the second polysilicon layer is of a second conductivity type. The various semiconducting and insulating elements, and their arrangement, are recited in independent Claim 11. Dependent Claims 12-17 recite various additional structural aspects in accordance with the present invention. Support for these new Claims can be found generally throughout the specification, and can be found more particularly at pages 5-8 and in Figs. 2, 3a-3m, and 4a-4b.

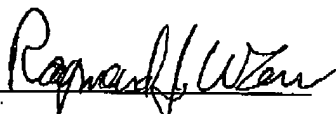
The cited references do not appear to disclose, suggest, or provide motivation for a structure that provides a bipolar transistor and protection diode in the manner recited in independent Claim 11. Neither Pao, et al., nor Harmel, et al., disclose a structure that includes a first doped polysilicon structure in contact with the third doped region, both of a first conductivity type; a second polysilicon structure in contact with the second doped region, both of a second conductivity type, and a fourth doped region disposed in an epitaxial layer, aligned with, but spaced apart from, the first and third doped regions.

Conclusion

All of the rejections in the outstanding Office Action of 01 June 2004 have been responded to, and Applicants respectfully submit that the pending Claims 1-5, 9-10, and 11-17 are now in condition for allowance.

Applicants respectfully request that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

By 
Raymond J. Werner
Reg. No. 34,752

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Portland, Oregon